REMARKS

Claims 1-17 continue to be the pending claims in the application. Claims 1 and 2 have been amended. Support for the amendment to claim 1 is found throughout the specification and specifically at paragraphs [0022], [0023] and [0026]. Support for the amendment to claim 2 is found throughout the specification and specifically at paragraphs [0023], [0024] and [0027]. Reconsideration of the application in light of the remarks which follow is respectfully requested.

The Examiner asserts that Ahluwalia U.S. Patent No. 5,965,257 ("Ahluwalia '257"), together with Farrar U.S. Patent No. 5,338,349 ("Farrar") and Langer U.S. Patent No. 4,600,634 ("Langer"), render the instant claimed subject matter obvious.

The Examiner states that Ahluwalia discloses structural articles that comprise a substrate having an ionic charge which is coated with a coating having essentially the same ionic charge. The Examiner concludes that "Ahluwalia discloses the claimed invention except for the teaching of a gel catalyst component and that a metallic component is adhered to the coated substrate on one or both sides of the substrate." and that "It would have been obvious to one having ordinary skill in the art to have added Langer's aluminum sheet to one or both sides of the coated substrate of Ahluwalia and Farrar, motivated by the desire to create a structural article with increased strength and durability."

If one were to assume, *arguendo*, the motivation to increase strength and durability on which the Examiner bases her rejection, then claim 1 and claims dependent thereon should be deemed nonobvious in view of Ahluwalia '257 and Langer because claim 1, as amended, covers a composite material which does not include a substrate.

If a person of ordinary skill in the art were motivated to increase the strength and durability of a structural article, he or she would not omit an element — the substrate — while retaining the element's function. See, *In re Edge*, 359 F.2d 896, 149 U.S.P.Q. 556

(CCPA 1966) cited at M.P.E.P. Section 2144.04, page 2100-148.

As noted above, the Examiner states that Ahluwalia '257 "articles comprise a substrate having an ionic charge which is coated with a coating having essentially the same ionic charge." Ahluwalia '257 teaches that a zero bleed through coating is produced by coating a substrate with a coating having essentially the same ionic charge. See, e.g. Ahluwalia '257, col. 1 line 67 to col. 2 line 10; col. 5 lines 39-55.

The present application does not mention the charge of the substrate employed, when a substrate is employed, or the charge of the first layer which is adhered to the substrate. In paragraph 0071 Applicants express the belief that the first layer, which has the consistency of a light foam, such as shaving cream, does not pass through the substrate because of the presence of the surfactant-generated microcells in the low density mixture. Applicants also state that "the viscosity of the first layer can be increased through mixing" "to ensure that it does not bleed through the substrate". *Id.* The Applicants then provide several examples of thickening agents. *Id.*

In contrast, Ahluwalia '257 teaches "a structural article having a coating which includes only two major constituents, while eliminating the need for viscosity modifiers". Col. 1, lines 54 to 57. Thus, Applicants utilize a coating that differs from the coating of Ahluwalia '257. Indeed, Ahluwalia '257 teaches away from the coating of the instant invention which includes more than two major constituents.

The instant application is a continuation-in-part of Application Serial No. 09/955,395, filed on September 18, 2001, which issued as U.S. Patent No. 6,858,550 (the "Ahluwalia '550 patent") on February 22, 2005, a copy of which is attached. The Examiner of the present application also examined the Ahluwalia '550 patent application. Claim 1 of the '550 patent is as follows:

> 1. A fire resistant fabric material comprising a substrate having an ionic charge coated with a coating having essentially the same ionic charge,
> wherein said coating consists essentially of a filler material comprising clay and a binder material,
> wherein said binder material bonds the filler material together and to the substrate,
> wherein said coating does not bleed through said substrate, and
> wherein said fire resistant fabric material is dranable [sic] and has a porosity of between 5 and 50 cfm.

Ahluwalia '257 is listed as a cited reference on the first page of the '550 patent. Ahluwalia '257 did not render the Ahluwalia '550 claims unpatentable and it should also not bar patentability of the instant claims.

The Examiner asserts that Ahluwalia '257 "discloses that it is well known to include clay as a filler material in structural articles in the building industry." As detailed below, Ahluwalia '257 provides only an acknowledgment that clay had been used to fill the interstices between fibers in structural article sheets, not that clay could be used in coatings that did not bleed through such sheets.

In the BACKGROUND OF THE INVENTION in column 1 in Ahluwalia '257, there is a summary of prior art laminates made with facing sheets. It is noted that the laminates described in U.S. Patent No. 5,001,005 ("Blanpied") include thermosetting plastic foam and have planar facing sheets comprising glass fibers (exclusive of glass micro-fibers), non-glass filler material and non-asphaltic binder material. Col. 1, lines 17-21. Clay is one of the listed filler materials "that are bonded to the glass fibers using binders."

The Blanpied patent relates to laminates and foam filled panel products. Col. 1, lines 7-8. In particular, Blanpied describes facer sheets for foamed core panels. *Id.*, lines 14-17. Prior art glass fiber sheets having a high porosity had been filled with "micro-fibers" and "fibrous glass dust" to decrease the porosity of the facer and contain the thermosetting plastic foams. *Id.*, lines 37-46. However, "micro-fibers" came to be regarded

as hazardous to human safety. *Id.* lines 55-57. An asserted advantage of the Blanpied patent was the provision of facers which lack micro-fibers. Col. 2, lines 10-12.

The facing sheets described in the Blanpied patent include from 60% to 90% by weight glass fibers, exclusive of glass micro fibers; from 10% to 40% by weight non-glass filler material and from 1% to 30% by weight non-asphaltic binder. The filler may be clay. *Id.*, lines 36-43. The clay fills spaces in the glass fiber facing sheet. Col. 1, lines 41-46. A coating is mentioned only in Facer Example No. 3, and there it is indicated that a thermoplastic polymer latex is mixed with clay or another filler and with water and a water thickener. There is no suggestion that the coating does not bleed through the mat. Indeed, the example states that the coating "reduces the porosity of shingle mat to the extent it can be used as a facer for thermosetting plastic foam boards." Col. 3, lines 66-68. Thus, the Ahluwalia '257 reference to the '005 patent and to clay provided no indication that clay could be utilized in a zero bleed through coating.

The Blanpied patent also notes the possible utilization of aluminum foil elements. It is stated that structural laminates employing only the Blanpied facer may feature on the opposite side of the core prior art facers such as aluminum foil. The instant claim 2 recites "a metallic component adhered to the coated substrate". The Blanpied patent does not describe a metal component adhered to a coated substrate.

The invention described in Ahluwalia '257 is "a structural article made by coating a substrate having an ionic charge with a coating having essentially the same ionic charge. The coating consists essentially of a filler material and a binder material." Col. 1, line 66 to col. 2, line 3. The filler is selected from the group consisting of fly ash, charged calcium carbonate, ceramic microspheres and mixtures thereof. Abstract, col. 2, line 21 to col. 3, line 4. The coating does not bleed through the substrate. Col. 2, lines 3 to 8. Nothing in Ahluwalia '257 indicates that clay may be included among filler components to produce a

coating that does not bleed through a substrate. Indeed, Ahluwalia distinguished his described and claimed invention from prior art laminates that featured clay as a filler in the construction of planar facing sheets. The Ahluwalia '257 patent issued on October 12, 1999.

On September 18, 2001, Ahluwalia filed the application which issued as the '550 patent. In that application, it was noted that the products of Ahluwalia '257 "are unable to provide a satisfactory fabric material because they lack adequate drapability characteristics. The applicant has discovered, however, that by including clay as a filler component in the coating of the article, a fire resistant fabric material may be produced which has satisfactory flexibility, pliability and drapability characteristics." Ahluwalia '550, col. 2, lines 36 42. Thus, nearly two years after the issuance of the '257 patent, Ahluwalia continued to distinguish the invention disclosed therein from products which included clay as a filler component.

The invention of claim 2, like that claimed in its ancestor Ahluwalia '550 patent, includes a coated substrate wherein the coating includes a filler component comprising clay and a binder component. *See* '550 claim 1 and instant claim 2. In both instances the coating "does not bleed through said substrate." *Id.* The patented Ahluwalia '550 claims cover fire resistant materials that are "drapable" and that have "a porosity of between 5 and 50 cfm." The instant claim 2 is directed to a heat insulating and fire resistant composite material that comprises the aforementioned coated substrate and a metallic component adhered thereto. The coating is a first layer comprising a surfactant component, surfactant-generated microcells, a gel catalyst component, a filler component comprising clay and a binder component which bonds the filler together and to the substrate, and wherein the first layer does not bleed through the substrate. Nothing in Ahluwalia '257 suggests such a composite material.

The Examiner's attention is invited to two other of the instant application

assignee's patents: U.S. Patent Nos. 6,586,353 to Kiik, Bryson, Tobin and Ahluwalia ("Kiik '353") and 6,673,432 to Kiik, La Vietes and Ahluwalia ("Kiik '432"), copies of which are attached. Kiik '353 is an ancestor to the present application and to Kiik '432.

Kiik '353 discloses a roofing underlayment system that comprises at least one layer of felt material and at least one layer of the coated structural article of Ahluwalia '257. Kiik '432 discloses a structural article comprising a substrate having an ionic charge coated on one side with the coating of Ahluwalia '257 and covered on the other side with a water vapor impermeable coating comprising a material selected from the group consisting of metal foils and preformed plastic films. Both Kiik '353 and Kiik '432 describe the filler component of the Ahluwalia '257 coating as a filler selected from the group consisting of fly ash, charged calcium carbonate, ceramic microspheres and mixtures thereof. Neither Kiik '353 nor Kiik '432 indicates that clay may be included among the filler components and produce a coating that "does not bleed through" the substrate.

After discussing Ahluwalia '257 in the Office Action, the Examiner concluded that it "discloses the claimed invention except for the teaching of a gel catalyst and that the metallic component is adhered to the coated substrate". Essential to that conclusion was the Examiner's prior statement that Ahluwalia '257 discloses articles which "comprise a substrate having an ionic charge which is coated with a coating having essentially the same ionic charge." As noted above, that assertion is inapposite to the claims of the present application.

The Examiner asserts that Farrar discloses a gelling agent which the Examiner notes is capable of absorbing water and expanding in size to provide a degree of elasticity to the moist composition. The Examiner contends that the gelling agent of Farrar can be equated with the gel catalyst of Applicants' claimed invention. Applicants respectfully disagree.

A skilled artisan looking to Farrar would note that Farrar's disclosed gelling agent is a polymer that forms a gel when exposed to water and that, based on Farrar's

teaching, requires the addition of water and must expand, become moist, and grow in elasticity. *See* Farrar, col. 5, lines 26-29. Indeed, the only gelling agent taught by Farrar is sodium polyacrylate. *See* Farrar, Example 1 and claim 16. Sodium polyacrylate (also known as acrylic sodium salt polymer) is the polymer that is commonly used in diapers that absorbs water and swells. The skilled artisan looking to Farrar would not find any teaching of the gel catalyst of Applicants' claimed invention which, as defined in the present application, catalyzes gel formation. The present application further indicates that such catalysts may promote vulcanization to provide permanent cross-linking and to thermoset the first layer which can enhance the strength of the surfactant-generated microcell structure. *See* Application, page 10.

Representative examples of Applicants' gel catalysts are described in paragraph 0030 of the present application and include SSF-GEL, UP-750 and Octocure-590, 456 and 462. Applicants' gel catalyst cannot be equated with the gelling agent of Farrar, *i.e.*, sodium acrylate. The gel catalysts as defined by the present application are not polymeric agents that can be moistened to form an expanded, more elastic composition. SSF-GEL is a sodium silicofluoride dispersion which is an inorganic salt, generally used in latex foam production to cause the liquid starting material to form a solid in response to changes to pH or heat (*i.e.*, it is a pH/heat activated gel catalyst). Octocure® and UP-750 are catalysts of vulcanization and cause permanent cross-linking to occur. A skilled artisan would not find any teaching in Farrar that would lead to the inclusion of the presently claimed gel catalysts in the compositions of Ahluwalia. Farrar teaches the use of a polymer substance that is capable of absorbing liquid and lacks any teaching whatsoever of the gel catalyst of the present claims.

The rejection is also based on Langer U.S. Patent No. 4,600,634 which discloses sheet material comprising an inorganic fiber, such as fiberglass; a binder, such as acrylic resin; and an inorganic endothermic filler, such as alumina trihydrate. Abstract. The

"endothermic filler occupies the interstices between the fibers." Col. 4, lines 2 3. Clay is not listed among the fillers, but it is mentioned as an inorganic binder, on which the Langer "compositions do not rely." Col. 2, lines 53-54. Alternative embodiments feature the addition of a backing to the sheet material to "give added strength." *Id.*, lines 8-27. The backing materials may be aluminum foil or fabric scrim. *Id.*

The Examiner contends that it "would have been obvious to one having ordinary skill in the art to have added Langer's aluminum sheet to one or both sides of the coated substrate of Ahluwalia and Farrar, motivated by the desire to create a structural article with increased strength and durability." The Applicants respectfully submit that, whether it would have been obvious to add Langer's aluminum sheet to the coated substrate of Ahluwalia '257 is irrelevant to the issue of patentability of the instant claimed invention. In claim 1 of the present application, the metallic component is adhered to a first layer, not to the coated substrate of Ahluwalia '257. Moreover, in claim 2 of the instant application, the metallic component is adhered to a coated substrate comprising a surfactant component, surfactant-generated microcells, a gel catalyst, a filler component comprising clay and a binder component. As noted above, the Ahluwalia '257 coated substrate does not include clay. Indeed, Ahluwalia '257 distinguishes the inventive products described therein from prior art Blanpied facers which include clay to decrease the porosity in glass fiber sheets. Langer also employs filler, but not clay, to occupy "the interstices between fibers". Langer teaches that clay is not useful as a binder component.

The Examiner's attention is invited to the USPTO Examination Guidelines for Determining Obviousness, effective October 10, 2007. 72 Fed. Reg. 57,529 provides, *inter alia*, "Note that combining known prior art elements is not sufficient to render the claimed invention obvious if the results would not have been predictable to one of ordinary skill in the art." Nothing in Blanpied, Ahluwalia '257 or Langer suggests adhering a metallic component

to a layer formed without a substrate; or that inclusion of clay among filler components produces a coating that does not bleed through a substrate. Blanpied and Langer teach the utilization of filler to occupy the interstices between fibers to decrease the porosity of glass fiber sheets. Blanpied discloses clay as one such filler and Langer excludes its use as a binder. Regarding clay, Ahluwalia only summarizes the teaching of Blanpied, but does not in any way indicate that clay may be utilized in a zero bleed through coating.

Conclusion

Based on the foregoing, it is clear that there are significant, real world differences between the Ahluwalia '257 coated substrate and the composite materials of the present invention. Accordingly, allowance of the claims is earnestly solicited. Please send any further correspondence relating to this application to the undersigned attorney at the address below.

Applicants believe no fee is due in connection with this communication. However, should any fee be due in connection with this communication, the Commissioner is authorized to charge any such fee to Deposit Account No. 06-1205.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

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